VI. CLAIMS

What is claimed is:

1. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle, comprising:

   a. a source of energy;

   b. a transfer element coupled to said source of energy;

   c. an energy converter coupled to said transfer element which creates mechanical oscillations;

   d. a portable member configured so as to mechanically couple said mechanical oscillations to said exterior surface of said flow cytometer nozzle.

2. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 1 and further comprising a mechanically isolated receptacle connected to said portable member.

3. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 2 wherein said mechanically isolated receptacle connected to said portable member is hand held.

4. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 2 or 3 and further comprising a self alignment guide integral to said portable member which allows said portable member to self align with said exterior surface of said flow cytometer nozzle.

5. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 3 and further comprising a compressible coupling element affixed to said portable member which has at least one three dimensional surface.

6. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 3 and further comprising a cup surface configured to cup a nozzle tip of said flow cytometer nozzle.

7. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 6 and further comprising an oscillation coupling element held within said cup surface configured to cup said exterior surface of said nozzle tip of said flow cytometer nozzle.

8. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 7 wherein said oscillation coupling element held within said cup surface configured to cup said exterior surface of said nozzle tip of said flow cytometer nozzle comprises a solid material.

9. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 7 wherein said oscillation coupling element held within said cup surface configured to cup said exterior surface of said nozzle tip of said flow cytometer nozzle comprises a liquid material.

10. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 9 and further comprising a fluid retaining element with a first side affixed to said portable member and a second side which conforms to said exterior of said flow cytometer nozzle with said first side and said second side and said cup surface configured to cup said exterior surface of said flow cytometer nozzle.

11. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 10 and further comprising a liquid evacuation element which connects said cup surface configured to cup said exterior surface of said flow cytometer with said portable surface of said portable member to remove liquid from said cup surface configured to cup said exterior surface of said nozzle tip of said flow cytometer nozzle.

12. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 3 and further comprising a joining element with a first half and a second half wherein said first half of said joining element and said second half of said joining element removably join.

13. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 12 and further comprising a plurality of interchangeable portable members wherein each said interchangeable portable member has a nozzle exterior matching surface which mechanically couples with a corresponding matching surface of said exterior surface of said flow cytometer nozzle.

14. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claims 1, 3, 6, 9, 10, or 11 and further comprising a oscillation selection element which drives said energy converter at one of multiple selectable oscillation parameter.

15. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 14 where in said oscillation selection element drives said energy converter at a selectable oscillation parameter which corresponds to a nozzle aperture cleaning parameter.

16. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 14 where in said oscillation selection element drives said energy converter at a selectable oscillation parameter which corresponds to a particle disintegration parameter.

17. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 14 wherein said oscillation selection element drives said energy converter at said selectable oscillation parameter which

corresponds to a gas dislocation parameter.

18. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claims 1, 3, 6,9, 10, or 11 and further comprising a an oscillation variation element which drives said energy converter over a range of oscillations.

19. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 1, 3, 6, 9, 10, or 11 and further comprising an automated movement to which said mechanically isolated receptacle is responsive which couples said portable surface configured so as to mechanically couple said mechanical oscillations to said exterior surface of said flow cytometer nozzle with said exterior surface of said flow cytometer nozzle.

20. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 19 and further comprises a activation circuit connected to said automated movement which activates said automated movement independent of flow cytometry operation conditions.

21. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 19 wherein said activation circuit connected to said automated movement which activates said automated movement in response to said flow cytometer operation conditions.

22. A drop flow cytometer system, comprising:

a. a portable oscillating device as described in claims 1, 3, 6, 9, 10, or 11;

b. a sheath fluid;

c. a nozzle body within which at least a portion of said sheath fluid is contained;

d. a sample introduction element contained within said nozzle body;

e. a oscillation system to which said sheath fluid is responsive and which acts to create droplets;

f. a first driver system to which said oscillation system is responsive;

g. a second driver system to which said oscillation system is responsive;

h. a free fall area within which said droplets form and fall;

i. an analysis system acting at least in part as a result of events within said free fall area; and

j. a sort system responsive to said analysis system which acts upon said droplets in said free fall area.

23. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claims 22 and further comprising a second energy converter which creates mechanical oscillations coupled to said exterior surface of said flow cytometer nozzle.

24. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 22 and further comprising a droplet shield coupled to said drop flow cytometer system between said exterior surface of said flow cytometer nozzle that forms droplets and an instrument surface of said flow cytometer system surface.

25. A drop flow cytometer system, comprising:

a. a portable oscillating device as described in claim 14;

b. a sheath fluid;

c. a nozzle body within which at least a portion of said sheath fluid is contained;

d. a sample introduction element contained within said nozzle body;

e. a oscillation system to which said sheath fluid is responsive and which acts to create droplets;

f. a first driver system to which said oscillation system is responsive;

g. a second driver system to which said oscillation system is responsive;

h. a free fall area within which said droplets form and fall;

i. an analysis system acting at least in part as a result of events within said free fall area; and

j. a sort system responsive to said analysis system which acts upon said

droplets in said free fall area.

26. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claims 25 and further comprising a second energy converter which creates mechanical oscillations coupled to said exterior surface of said flow cytometer nozzle.

27. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 25 and further comprising a droplet shield coupled to said drop flow cytometer system between said exterior surface of said flow cytometer nozzle that forms droplets and an instrument surface of said flow cytometer system surface.

28. A drop flow cytometer system, comprising:

a. a portable oscillating device as described in claim 18;

b. a sheath fluid;

c. a nozzle body within which at least a portion of said sheath fluid is contained;

d. a sample introduction element contained within said nozzle body;

e. a oscillation system to which said sheath fluid is responsive and which acts to create droplets;

f. a first driver system to which said oscillation system is responsive;

g. a second driver system to which said oscillation system is responsive;

h. a free fall area within which said droplets form and fall;

i. an analysis system acting at least in part as a result of events within said free fall area; and

j. a sort system responsive to said analysis system which acts upon said droplets in said free fall area.

29. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claims 28 and further comprising a second energy converter which creates mechanical oscillations coupled to said exterior surface of said flow cytometer nozzle.

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30. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claim 28, 29, or 30 and further comprising a droplet shield coupled to said drop flow cytometer system between said exterior surface of said flow cytometer nozzle that forms droplets and an instrument surface of said flow cytometer system surface.

31. A drop flow cytometer system, comprising:

a. a portable oscillating device as described in claim 21;

b. a sheath fluid;

c. a nozzle body within which at least a portion of said sheath fluid is contained;

d. a sample introduction element contained within said nozzle body;

e. a oscillation system to which said sheath fluid is responsive and which acts to create droplets;

f. a first driver system to which said oscillation system is responsive;

g. a second driver system to which said oscillation system is responsive;

h. a free fall area within which said droplets form and fall;

i. an analysis system acting at least in part as a result of events within said free fall area; and

j. a sort system responsive to said analysis system which acts upon said droplets in said free fall area.

32. A portable oscillating device for a flow cytometer which oscillates an exterior surface of a flow cytometer nozzle as described in claims 31 and further comprising a second energy converter which creates mechanical oscillations coupled to said exterior surface of said flow cytometer nozzle.

33. A portable oscillating device for a flow cytometer which oscillates an exterior surface of

a flow cytometer nozzle as described in claim 31 and further comprising a droplet shield coupled to said drop flow cytometer system between said exterior surface of said flow cytometer nozzle that forms droplets and an instrument surface of said flow cytometer system surface.

34. A drop flow cytometer system, comprising:

a. a sheath fluid;

b. a nozzle body within which at least a portion of said sheath fluid is contained;

c. a sample introduction element contained within said nozzle body;

d. a oscillation system to which said sheath fluid is responsive and which acts to create droplets;

e. a first driver system to which said oscillation system is responsive;

f. a second driver system to which said oscillation system is responsive;

g. a free fall area within which said droplets form and fall;

h. an analysis system acting at least in part as a result of events within said free fall area; and

i. a sort system responsive to said analysis system which acts upon said droplets in said free fall area.

35. A drop flow cytometer system as described in claim 34 wherein said first driver system and said second driver system have different oscillation parameters.

36. A drop flow cytometer system as described in claim 35 wherein said sheath fluid is responsive to said second driver system.

37. A drop flow cytometer system as described in claim 35 and further comprising a oscillation parameter selector which establishes said oscillation parameters.

38. A drop flow cytometer system as described in claim 37 wherein said oscillation parameter selector element establishes said second driver system parameter at a nozzle cleaning parameter.

39. A drop flow cytometer system as described in claim 37 wherein said oscillation parameter selector element establishes said second driver system at a gas dislocation parameter.

40. A drop flow cytometer system as described in claim 37 wherein said oscillation parameter selector element establishes said second driver system at a particle disintegration parameter.

41. A drop flow cytometer system as described in claim 34 wherein said nozzle body has an exterior surface and wherein said oscillation system comprises:

a. a first oscillation system driven by said first driver system;

b. a second oscillation system driven by said second driver system;

c. a second oscillation system coupling element having an exterior oscillation surface coupled to said exterior surface of said nozzle body.

42. A drop flow cytometer system as described in claim 41 wherein said exterior surface of said second oscillation system coupling element is configured to complement said exterior surface of said nozzle body.

43. A drop flow cytometer system as described in claim 42 wherein said second oscillation system coupling element comprises a fluidic oscillation coupling element.

44. A drop flow cytometer system as described in claim 43 wherein said nozzle body has a nozzle aperture and wherein said fluidic oscillation coupling element couples said second oscillation system to said nozzle aperture of said nozzle body.

45. A drop flow cytometer system as described in claim 44 wherein said fluidic oscillation coupling element adjoins at least part of an internal surface of said nozzle aperture surface.

46. A drop flow cytometer system as described in claim 41 and further comprising said oscillation parameter selector which establishes said oscillation parameters.

47. A drop flow cytometer system as described in claim 46 wherein said oscillation parameter selector element establishes said second driver system at a nozzle cleaning parameter.

48 A drop flow cytometer system as described in claim 46 wherein said oscillation parameter selector element establishes said second driver system at a gas dislocation parameter.

49. A drop flow cytometer system as described in claim 46 wherein said oscillation parameter selector element establishes said second driver system at a particle disintegration parameter.

50. A drop flow cytometer system as described in claim 41 and further comprising an oscillation variation element to which said oscillation system is responsive.

51. A drop flow cytometer system with a dual oscillation flow cytometer nozzle device as described in claim 37 or 50 wherein said oscillation system changes independent of drop flow cytometer operating conditions.

52. A drop flow cytometer system with a dual oscillation flow cytometer nozzle device as described in claim 37 or 50 wherein said oscillation system changes automatically changes in response to drop flow cytometer operating conditions.

53. A drop flow cytometer system with a dual oscillation flow cytometer nozzle device as described in claim 34 or 41 and further comprising an instrument protection shield which surrounds said nozzle body when said second driver system is activated.

54. A fluidic oscillation system for a flow cytometer which oscillates a flow cytometer nozzle exterior surface, comprising:

a. an energy source;

b. a energy transfer element coupled to said source of energy;

c. a energy converter connected to said energy transfer element and which creates mechanical oscillations; and

d. a fluidic oscillation coupling element which is responsive to said energy converter and which is fluidicly coupled to said flow cytometer nozzle exterior surface.

55. A flow cytometer system as described in claim 46 and further comprising:

a. a sheath fluid;

b. a nozzle body within which at least a portion of said sheath fluid is contained;

c. a sample introduction element contained within said nozzle body;

d. a oscillation system to which said fluidic oscillation coupling element is responsive;

e. a free fall area below said flow cytometer nozzle exterior surface;

f. an analysis system acting at least in part as a result of events within said free fall area; and

g. a sort system responsive to said analysis system.

56. A flow cytometer system as described in claim 55 and further comprising a flow cytometer nozzle interior surface and wherein said fluidic oscillation coupling element adjoins at least part of said flow cytometer interior surface

Sub A3 ~~57. A flow cytometer system as described in claim 57 and further comprising a oscillation parameter selection element which operates said energy converter at selectable oscillation parameters.~~

58. A flow cytometer system as described in claim 57 wherein said oscillation parameter selection element operates said energy converter at said selectable oscillation parameters corresponding to a nozzle aperture cleaning parameter.

59. A flow cytometer system as described in claim 57 wherein said oscillation parameter selection element operates said energy converter at said selectable oscillation parameters corresponding to a gas dislocation parameter.

60. A flow cytometer system as described in claim 57 wherein said oscillation parameter selection element operates said energy converter at said selectable oscillation parameters corresponding to a particle disintegration parameter.

61. A flow cytometer system as described in claim 57 wherein said oscillation parameter selection element operates said energy converter at said selectable oscillation parameters corresponding to a sperm break-up parameter.

62. A flow cytometer system as described in claim 54 and further comprising a oscillation variation element which operates said energy converter throughout an range of at least one oscillation parameter useful to the operation of said flow cytometer system.

63. A oscillation system for a flow cytometer, comprising:

a. an energy source;

b. a energy transfer element coupled to said energy source;

c. a energy converter connected to said energy transfer element which outputs mechanical oscillations; and

d. an oscillation variation system which operates said energy converter throughout a range of at least one oscillation parameter.

64. A flow cytometer system as described in claim 55 and further comprising:

a. a sheath fluid;

b. a nozzle body within which at least a portion of said sheath fluid is contained;

c. a sample introduction element contained within said nozzle body;

d. a oscillation system which is responsive to said oscillation variation system;

e. a free fall area below said flow cytometer nozzle exterior surface;

f. an analysis system acting at least in part as a result of events within said free fall area; and

g. a sort system responsive to said analysis system.

65. A flow cytometer system as described in claim 63 wherein said nozzle body has an interior surface and wherein said oscillation variation selection system selects a cleaning oscillation to remove adherents from said interior surface of said nozzle body.

66. A flow cytometer system as described in claim 65 wherein said oscillation variation selection system selects a gas dislocation oscillations to dislocate gas entrapped within said nozzle body.

67. A flow cytometer system as described in claim 65 wherein said oscillation variation selection system selects a particle disintegration oscillation to disintegrate particles entrapped within said nozzle body.

68. A method of flow cytometry, comprising the steps of:

a. providing a flow cytometry apparatus having an exterior surface;

b. introducing a sample within said flow cytometry apparatus;

c. conducting flow cytometry through action of said flow cytometry apparatus;

d. engaging said exterior surface of said flow cytometry apparatus by a portable member;

e. creating oscillations within said flow cytometry apparatus through action of said portable member;

f. disengaging said portable member from said exterior surface of said flow cytometry apparatus; and

g. continuing to conduct flow cytometry through action of said flow cytometry apparatus.

69. A method of flow cytometry as described in claim 68 and further comprising mechanically isolating said portable member.

70. A method of flow cytometry as described in claim 69 and further comprising the step of holding said receptacle in a hand to removably couple said mechanical oscillations to said exterior surface of said flow cytometer nozzle.

71. A method of flow cytometry as described in claim 70 and further comprising the step of compressing a coupling element to said portable surface of said portable member.

72. A method of flow cytometry as described in claim 71 and further comprising the step of cupping a surface configured to approximate the exterior dimensions of said exterior surface of said flow cytometer apparatus near said exterior surface of said flow cytometer apparatus.

73. A method of flow cytometry as described in claim 72 and further comprising the step of oscillating said exterior surface of said flow cytometer apparatus with an oscillation coupling element held within said cup surface.

74. A method of flow cytometry as described in claim 73 wherein said step of oscillating

said exterior surface of said flow cytometer apparatus with an oscillation coupling element held within said cup surface comprises using a solid oscillation coupling element.

75. A method of flow cytometry as described in claim 73 wherein said step of oscillating said exterior surface of said flow cytometer apparatus with an oscillation coupling element held within said cup surface comprises the use of a liquid oscillation coupling element.

76. A method of flow cytometry as described in claim 75 wherein said flow cytometry apparatus has an interior surface and further comprising the step of fluidicly coupling said oscillations to said interior surface of said flow cytometry apparatus.

77. A method of flow cytometry as described in claim 75 and further comprising the step of draining said surface configured to cup said exterior surface of said flow cytometer of fluid.

78. A method of flow cytometry as described in claim 73 and further comprising the step of retaining said oscillation coupling element within said portable member cupping said exterior surface of said flow cytometer apparatus with a fluid retaining element having a first side affixed to said portable member and a second side which conforms to said exterior of said flow cytometer apparatus with said first side and said second side and said surface configured to cup said exterior surface of said flow cytometer apparatus.

79. A method of flow cytometry as described in claim 68, 69, 70, 72, 73 or 76 and further comprising the step of selecting said mechanical oscillations created by said energy converter by selecting said parameter from an oscillation selection element.

80. A method of flow cytometry as described in claim 79 and further comprising the step of disintegrating a particle within said flow cytometer apparatus when said portable member is cupping said exterior surface.

81. A method of flow cytometry as described in claim 79 and further comprising the step of dislocating a gas within said flow cytometer apparatus when said portable member is cupping said exterior surface of said flow cytometer apparatus by selecting a gas dislocation oscillation from said oscillation selection element.

82. A method of flow cytometry as described in claims 68, 69, 70, 72, 73, or 76 and further comprising the step of sweeping a range of oscillations.

83. A method of flow cytometry as described in claims 68, 69, 70, 71, 72, 73, 76, or 78 and further comprising the step of moving said portable member with an automated moving system.

84. A method of flow cytometry as described in claims 79 and further comprising the step of moving said portable member with an automated moving system.

85. A method of flow cytometry as described in claims 82 and further comprising the step of moving said portable member with an automated moving system.

86. A method of flow cytometry as described in claim 83 and further comprising the step of manually activating said automated moving system.

87. A method of flow cytometry as described in claim 83 and further comprising the step of automatically activating said automated moving system in response to preselected flow cytometer operating parameters.

88. A flow cytometer system, comprising:

a. a flow cytometry apparatus;

b. an energy source;

c. a energy transfer element coupled to said energy source; and

d. a de-bubbling energy converter connected to said energy transfer element which outputs mechanical oscillations selected to have a de-bubbling oscillation parameter corresponding to gas dislocation which dislocates gas bubbles with said de-bubbling oscillation parameter from within said flow cytometer apparatus.

89. A method of flow cytometry, of:

a. providing a flow cytometry apparatus having an exterior surface;

b. providing a source of energy;

c. transferring said energy through a transfer element;

d. converting said energy with a energy converter which outputs mechanical oscillations;

e. introducing a sample within said flow cytometry apparatus;

f. conducting flow cytometry through action of said flow cytometry apparatus;

g. creating oscillations in the vicinity of said flow cytometry apparatus; and

h. fluidicly coupling said oscillations to said exterior surface of said flow cytometry apparatus.

90. A method of flow cytometry as described in claim 89 wherein said step of fluidicly coupling said oscillations to said exterior surface of said flow cytometry apparatus comprises the step of cupping a cup surface configured to approximate the exterior dimensions of said exterior surface of said flow cytometer apparatus near said exterior surface of said flow cytometer apparatus.

91. A method of flow cytometry as described in claim 89 or 90 wherein said step of fluidicly coupling said oscillations to said exterior surface of said flow cytometry apparatus comprises using a solid.

92. A method of flow cytometry as described in claim 89 or 90 wherein said step of fluidicly coupling said oscillations to said exterior surface of said flow cytometry apparatus comprises using a liquid.

93. A method of flow cytometry as described in claim 92 wherein said step of fluidicly coupling said oscillations to said exterior surface of said flow cytometry apparatus comprises the step of fluidicly coupling said oscillations to said interior surface of said flow cytometer apparatus.

94. A method of flow cytometry as described in claim 93 and further comprising the step of draining said surface configured to cup said exterior surface of said flow cytometer of fluid.

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95. A method of flow cytometry as described in claim 89, 90, or 93 and further comprising the step of retaining said oscillation coupling element within said portable member cupping said exterior surface of said flow cytometer apparatus with a fluid retaining element having a first side affixed to said portable member and a second side which conforms to said exterior of said flow cytometer apparatus with said first side and said second side and said surface configured to cup said exterior surface of said flow cytometer apparatus.

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96. A method of flow cytometry as described in claim 89, 90, 93, or 94 and further comprising the step of selecting said mechanical oscillations created by said energy converter by selecting said parameter from an oscillation selection element.

97. A method of flow cytometry as described in claim 96 and further comprising the step of disintegrating a particle within said flow cytometer apparatus when said portable member is cupping said exterior surface.

98. A method of flow cytometry as described in claim 96 and further comprising the step of dislocating a gas within said flow cytometer apparatus when said portable member is cupping said exterior surface of said flow cytometer apparatus by selecting a gas dislocation oscillation from said oscillation selection element.

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99. A method of flow cytometry as described in claim 89, 90, 93, or 94 and further comprising the step of sweeping a range of oscillations.

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100. A method of flow cytometry as described in claim 89, 90, 93, or 94 and further comprising the step of moving said portable member with an automated moving system.

101. A method of flow cytometry as described in claim 96 and further comprising the step of sweeping a range of oscillations.

102. A method of flow cytometry as described in claim 96 and further comprising the step of moving said portable member with an automated moving system.

103. A method of flow cytometry as described in claim 100 and further comprising the step of manually activating said automated moving system.

104. A method of flow cytometry as described in claim 100 and further comprising the step of automatically activating said automated moving system in response to preselected flow cytometer operating parameters.

105. A method of flow cytometry, comprising the steps of:

a. providing a flow cytometry apparatus;

b. providing a source of energy;

c. transferring said energy through a transfer element;

d. converting said energy with an energy converter which creates mechanical oscillations;

e. selecting a de-bubbling oscillation parameter corresponding to gas dislocation which dislocates gas bubbles with said de-bubbling oscillation parameter from within said flow cytometer apparatus;

f. creating de-bubbling oscillations within said flow cytometry apparatus

using said de-bubbling oscillation parameter;

g. introducing a sample within said flow cytometry apparatus; and

h. conducting flow cytometry through action of said flow cytometry apparatus.

106. A method of flow cytometry as described in claim 105 wherein said step of creating de-bubbling oscillations comprises the step of sweeping a range of oscillations.

107. A method of flow cytometry, comprising the steps of:

a. establishing a sheath fluid in a nozzle body;

b. introducing a sample within said nozzle body;

c. entraining said sample within said sheath fluid;

d. flowing said sample and said sheath fluid out of said nozzle body and into a free fall area;

e. creating a first oscillation mode to which said sheath fluid is responsive as said sheath fluid flows out of said nozzle body;

f. creating drops from said sheath fluid within said free fall area as a result of said first oscillation mode;

g. analyzing events within said free fall area;

h. sorting said drops within said free fall area as a result of said step of analyzing events within said free fall area;

i. temporarily establishing a second oscillation mode within said nozzle body; and

j. continuing to conduct flow cytometry through action of said flow cytometry apparatus.

108. A method of flow cytometry, comprising the steps of:

a. providing a flow cytometry apparatus;

b. introducing a sample within said flow cytometry apparatus;

c. conducting flow cytometry through action of said flow cytometry apparatus;

d. creating oscillations in the vicinity of said flow cytometry apparatus; and

e. sweeping said oscillations throughout a range of at least one oscillation parameter.

109. A method of flow cytometry as described in claim 108 wherein said flow cytometry apparatus is a drop flow cytometry apparatus.